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Title: The central role of exploration in designing business concepts and strategy

Year: 2011

Version: Final published version

Please cite the original version:

Kirjavainen, Senni & Björklund, Tua A. 2011. The central role of exploration in designing business concepts and strategy. The 18th International Conference on Engineering Design, Copenhagen, 15-18 August 2011. pp. 325-334. ISSN 2220-4334 (printed). ISBN 978-1-904670-23-0 (printed).

THE CENTRAL ROLE OF EXPLORATION IN DESIGNING BUSINESS CONCEPTS AND STRATEGY

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ABSTRACT
Design thinking is described as a combination of thinking and acting that leads to new solution possibilities for design problems. Though traditionally linked to the design of objects and services, it can be applied to organizational processes as well. This paper examines design thinking in developing a new business, focusing on the business concept and strategy formation in the start-up phase of the company. How and what elements of design thinking are manifested in the process of designing a business concept and forming a strategy? What is the importance of these elements in this process? The results reveal the experimental and iterative nature of developing the business concept and strategy. In addition, these organizational processes were strongly influenced by the product offering, stakeholders, and environment that the company operated in. While the results highlighted the importance of emergence, they also illustrated a need for structure and planning, thus reminding of the need of balancing between the two. Overall, the results suggest that many of the fundamental elements of design thinking are found in the development process of a company.

Keywords: design thinking, experimentation, emergent strategy, business concept formation

1. INTRODUCTION
When it comes to designing physical objects or services the term design thinking is often mentioned and discussed, and it is seen as a way of thinking that can significantly enhance the design process and the outcomes of it. Design thinking, as a term, has recently become trendy [e.g.1] and there seems to be a hype building around it [e.g.2]. It has also been suggested, that design thinking has gained popularity as "it makes it easier for those outside the design industry to focus the idea of design as a way of thinking about solving problems, a way of creating strategy by experiencing it rather than keeping it an intellectual exercise, and a way of creating and capturing value" [1]. Recently multiple traditionally non-design-led disciplines have turned their focus to design in order to refresh their own ways of working [3], as creativity and creative thought can be applied to almost any discipline [4].

The literature on design thinking is abundant [e.g.3, 4, 5, 6], but there is no established coherence on what the term design thinking means, how it is that designers actually think and act, if the ways are distinctive to designers only, and how design thinking could contribute to organizations. However, most theories agree on design thinking being a combination of thinking and acting that leads to new, sometimes surprising, outcomes [7]. Two distinctive perspectives on design thinking can be identified, one that is more focused on the argument of creating business advantage by bringing design thinking into organizations where it traditionally has not taken place [5, 8], and another that is more focused on design methodology and the cognitive processes behind that methodology [4, 7, 9, 10].

In the core of design thinking is the cognitive process, which, depending on the source, is described as abductive [5, 11], integrative [4, 8] or divergent with convergent thinking balancing it [4, 8]. All of these ways of thinking emphasize the possibility of creating and deliberating multiple options for a solution, [4, 5, 8] rather than selecting between existing alternatives. Thus the explorative content of the design thinking concept emerges already on a cognitive level. In addition, design thinking emphasizes the meaning of understanding a problem as an entity rather than as small fractures. Thus design thinking is a holistic way of solving problems, where design problems are approached as system problems, with opportunities for systemic, holistic solutions [6, 12, 13].

There are also certain practices and attitudes that seem to be central for design thinking. Most of these center around exploration and experimentation [6], especially with the help of prototyping [8], the continuity of the designing process [4, 6], and user-centricity [e.g. 6, 12, 14]. Experimentalism aims at reaching a solution that is significantly new, by questioning what is known, which happens through for example brainstorming potential solutions or by prototyping, where the goal is not to produce final solutions, but to learn from the experiments and identify new directions for the process [6]. The explorative and experimental process consists of endless rounds of trial and error [6] , and is to a certain extent open-ended and uncertain [4]. Thus the approach requires disregarding the fear of failure [13], acceptance of ambiguity [9, 14], and reflection-in-action [7].

Especially management literature has been increasingly turning to design thinking in recent years [3], in a search for innovation and competitive advantage. Design thinking has been described as, for example, an underused tool for creating strategic business initiatives that are increasingly driven by the need for innovation [15]. Further, it has been argued that companies that embrace design thinking would have the ability to create advances in innovation and efficiency, thus producing a powerful competitive edge [5]. The first aim of this paper is to empirically investigate the link between design thinking and the development process of a new company in order to confirm that design thinking can indeed benefit the process of developing ventures, in addition to developing products and services. Secondly, this study aims at identifying the nature of the elements of design thinking that are currently manifested in developing a new business, particularly in the process of developing the business concept and strategy. As exploration is a key element linking different design thinking approaches [e.g. 6, 7, 15], it is expected to be featured prominently in the business concept and strategy development process, and the present study aims to gather empirical support for the notion.

2. METHODS

This study investigates the design process of a business concept and strategy from the point where the idea of a company forms to the point where the company is operating. Eight participants from eight companies were interviewed on the start-up phase and formation process of their company's business concept and strategy.

2.1 Data collection

The data was collected in eight critical incident [e.g. 16, 17] based in-depth thematic interviews [18] allowing the interviewees to explore the questions freely and direct the conversation in the interview. The interviews were conducted and recorded during a two-week period in June 2010.

The eight companies were all Finnish, and comprised of four companies that have their own design products, two design agencies, one design management company, and one company providing service products. All of the founders were thus familiar with the development of products or services. The interviewees were all founding equity holders of their companies and active, full time workers in their companies, out of which the oldest was found in 2004 and the youngest in the summer of 2009. The company size varied from 2 to 22 persons. Six of the interviewees were industrial designers and two were engineers. The interviewee's age averaged at 32, ranging from 25 to 35.

The interviewees were asked to narrate the story of their company and the decisions, actions, moments and events they personally considered important along its development. The main theme was the formation of the business concept and strategy of the company in question. In order to provide a frame of reference and initiate the interviewee's recollections, each interviewee was asked to draw the story of their company, from the very start (when the idea first was born) to where they were at the moment of the interview. The drawing provided an outline of the formation process of their company and acted as an aid in identifying the significant moments and events. In addition, the drawing provided the interviewer an effective and efficient way to become familiar with the company. These drawings were then used later in the interview, to return to summon up memories regarding different phases of the company's development, and to guide the discussion into those phases and their characteristics. The drawings were not analyzed as research data, but merely stimulated recall in the interview process.

The interviews were all conducted in Finnish, the mother tongue of the participants. The interviews were recorded.

2.2 Data analysis

The interviews lasted between 62 and 104 minutes, averaging at 83 minutes. The audio-recordings were transcribed, producing 102 single spaced pages of data. This data was segmented into individual arguments [19], where each segment represented one distinct idea or thought. 262 segments related to the formation process of the business concept and strategy were identified were identified. The interviewees made no separation between the business concept and strategy except for few exceptions, and thus they are not differentiated between in the presentation of the results.

The segments were categorized into mutually exclusive categories based on thematic similarity [see e.g. 18]. First, recurring general themes of concept and strategy development were searched for, resulting in four repeated subjects, each describing distinct a style of development: “explorative thinking processes and attitudes”, “purposeful, direct developing”, “indirect active influences on development” and “passive development”. The content of these four categories was then further grouped into smaller, more defined, subgroups based on thematic similarity. Each category came to have four to six thematic groups, each group containing 4 to 36 segments each representing a distinct theme. In total, 21 mutually exclusive subcategories were identified. For example the following segment was first found to repeat the idea of “purposeful, direct developing”, and was later grouped into the subcategory of operational and strategic planning ”:*“(we have) looked for certain kind of clients, tried to offer certain kind of projects”* (interview 2). All of the categories were thus formed in a bottom-up fashion based on the data, rather than on any theoretical underpinnings. This way, all of the interview content on strategy and concept formation and development is included in the presented results, as no preset limitations were imposed on the data.

In order to ensure representativeness, the resulting categories were checked for occurrences against the conducted interviews. All of the categories appeared in at least 7 to 8 out of the eight interviews, and each individual interview produced data for at least 3 of the 4 categories (see Table 1).

Table 1. Number of segments in each category according to interview source

Category	Interview								Total no. of segments
	1	2	3	4	5	6	7	8	
1. Explorative thinking processes and attitudes	12	13	10	9	10	5	16	8	83
2. Purposeful, direct developing	11	15	16	9	3	3	3	10	70
3. Indirect active influences on development	18	8	6	0	10	8	9	6	65
4. Passive developing	4	9	7	2	4	4	11	3	44
Total no. of segments	45	45	39	20	27	20	39	27	262

3. RESULTS

The classification process resulted in four categories (see Table 2). Categories 2, 3 and 4 were mutually exclusive, but some thematic overlapping occurred between categories 1, 2 and 3.

Table 2. Resulting categories and subcategories of the interview segments

Category	Subcategory	No. of segments
1. Explorative thinking processes and attitudes	Concreteness in early stage	36
	Feedback seeking testing	18
	Experimenting	9
	Scouting	9
	Trusting one's intuition and vision	7
	Iterating	4
	Total	*83*
2. Purposeful, direct developing	Operational and strategic planning	23
	Sessions of designing the concept and strategy	22
	Crystallizing the core idea	10
	Development as a continuous process	10
	Surveys and studies to support design decisions	5
	Total	*70*
3. Indirect active influences on development	Product	22
	Reacting to changing environment	18
	Team	10
	Weak signals and opportunities	9
	The entrepreneur him/herself	6
	Total	*65*
4. Passive development	Gradual evolutionary development	20
	Emergence	10
	Coincidences that lead to development	7
	Experience of incubation and illumination	7
	Total	*44*
Total		*262*

3.1 Explorative thinking processes and attitudes

The first category contains segments regarding the attitudes and thinking processes affecting the development (n=83). The largest subcategory, concreteness in the early stage (n=36) reflects the importance of having the courage to start something new, and having the opportunity and will to take risks in the development of a business concept and strategy. Concretizing the idea early on and lifting the idea to a higher level were also an important part of starting the company, and the planning phase before starting the operations was often very short. The first concrete steps that were taken (often before establishing the company officially) were e.g. getting the first customer, building a prototype of the product idea in product-centric companies, or starting networking and marketing of one's business. The fast paced beginning seemed to create a snowball effect.

The second largest subcategory (n=18) was segments related to the importance of feedback seeking testing. Three different ways of testing the concept and its parts surfaced; pitching the idea to (potential) customers, partners in cooperation, and investors in order to gain feedback on viability and direction, more informal talking about the idea and the business concept to friends, family and other non-stakeholder people who might have an insight on the subject, mainly to clarify the idea, and finally questionnaires and test marketing mainly for reassurance of the viability of the chosen concept.

“Scouting” for a right problem set and ideal solutions as well as (n=9) was also a recurring theme, as well as experimentation (n=9) and iteration (n=4). Whereas iteration was a more conscious and process-like approach, the experimentation subcategory included segments describing separate experiments. Both iteration and experimentation reflected the on-going nature of the development. The business concept and strategy were both formed to a certain extent by experiments, and the learning they produced. The mistakes made while experimenting were perceived to play a very significant role in molding the direction of the business concept, as they helped to specify where the real potential of the idea or for example markets lay. This subcategory was linked to the largest subcategory, possessing courage and the ability to take risks.

Finally, pre-existing vision or intuition (n=7) were often stated as the reason why something was pursued, and they were the reasoning behind the goals set for the company. The vision was something that had been consciously created and it usually remained the same since the idea had been born through the process of creating the company. Sometimes the whole company was built according to the founder’s or founding team’s strong vision – in both cases the intuition and vision were usually the result of a process rather than a result of an illumination.

3.2 Purposeful, direct developing

The purposeful direct developing category (n=70) was perceived as a continuous process, as well (n=10). The largest subcategory was operational and strategic planning (n=23), making decisions on clientele, key needs, market position and company image. In addition business plans, roadmaps, flow-charts and quarterly goals were made. The second subcategory, sessions of designing the concept and strategy (n=22), reflected a systematic way utilizing tools of concept design as well, utilizing ideation, scenarios building, sketching the concept, identifying design requirements, and problem definition. These activities helped to narrow down the concept and strategy. Surveys and studies to support design decisions (n=5) were used as verification to the concept’s viability as the company that was being developed. The knowledge from these kinds of “information acquisitions” was used when designing the business concept and defining a company’s niche.

In addition to the wide variety of traditional development and information acquisition methods utilized, the category reflected the importance of a strong, solid core (n=10). The core guided the rest of the business concept, strategy and operations formation, and core remained unchanged even if the rest of the concept underwent drastic changes, helping to focus operations, as well as appearing professional and competitive in the field of business.

3.3 Indirect active influences on development

The third category, indirect active influences on developing (n=65), consisted of segments describing actions that were pursued purposefully but contributed to the development of the company itself only indirectly (as opposed to category 2, where company development was a explicit goal). The largest indirect influences came from products (n=22) – the companies were very product centric, and the development of new products shaped the company as well. The company often was in a way led by the product, to the extent that the whole business concept and strategy leaned on the product and the development of the company was often done on the terms of the product, even when not consciously intended. They entrepreneurs often equated their business concept and strategy with their products, making no difference in their treatment. Having a product idea was often the only reason that the company was formed, especially in the case of physical products.

The second largest indirect influence came from outside changes (n=18), as agile and fast adjusting to outside circumstances was perceived as crucial. Usually changes resulted due to funding issues, competitors coming to the market, customer’s processes, and changes in the customer’s situation or direction. In addition, opportunities and weak signals (n=9), such as cultural and technological upcoming changes that the entrepreneurs had spotted, had an effect on the concept and strategy. They were often the source of the initial business idea, helped to narrow the idea down, provided assurance for the planned direction, framed their company’s concept and helped to specify their niche. These signals were systematically searched for, and the ability to be agile was attributed to the small size of their companies.

The company personnel experience, strengths and styles also had a significant influence on the concept and strategy, both via the team composition (n=10) and the interviewee personally (n=6). The team that had been formed was the crucial condition in seven out of eight cases for forming of the company, and learning and development along with the process of creating a company had an effect on how the entrepreneurs perceived their company and acted in it.

3.4 Passive development

The final, smallest category consisted of segments described the passive formation of the business concepts and strategies (n=44), without any actor consciously provoking the development outcome. The largest subcategory was gradual evolutionary development (n=20), describing the development process as "shaping into something", the concept "living" or the company "sliding" into being something during a time span. This was especially the case in role differentiation and deal acquisition. In most cases, the shaping or evolution was perceived to be the sum of experience, thinking and action, happening alongside with the development and foundation processes and the operations starting, without the entrepreneurs consciously working towards it.

The second largest subcategory, emergence (n=10), in turn reflects a lack of conscious formulation or development of the company strategy, not having a strategy, or having a very rapidly changing strategy resembling more of a plan of actions for the next coming months. The clear vision (see Category 1) and non-existent strategy was mostly seen as a necessity and even a mildly positive situation, but it was also sometimes problematic, as the operations were scattered and a excess work was done. Especially in the beginning, the strategy seemed to be very emergent, the outcome of vision and actions. Coincidences lead to the concept and strategy development (n=7), playing a large role in the formation of the team (likeminded people with similar professional goals meeting) and timing (spotting opportunities at a time when a potential team was present).

Finally, the last recurring theme in the category was the experience of incubation and illumination (n=7). Three of the interviewees described how they experienced some parts of the design process happening subconsciously, and the solution to a problem, an essential part of the concept, or even an entire business idea just coming together as a sudden flash of illumination.

4. DISCUSSION

As the objective of this study was to investigate the link between design thinking and the development process of business concepts and strategy, eight company founders were interviewed on the foundation and development process of their company. Analysis revealed that design thinking was indeed manifested in the process of designing a business concept and strategy. Exploration was prominently featured in the process, both as active experimenting and exploring and in the form of emergent, reactive iteration of the concept and strategy. The three major themes that recurred throughout the results were continuous experimentalism, emergence in both the development of the business concept and the strategy, and the indirect effect that the people and the product had on the company concept and strategy. While these describe how design thinking was manifested in the process, they were balanced by analytical thinking, illustrating how the process still was, to some extent, prediction oriented in spite of the many design thinking elements that could be discovered.

The main limitation of the present study was the small amount of participants, as the study was done to lay the foundation for future work. Thus the results of this explorative study are indicative, and cannot be applied to all organizational processes. However, the main themes that were present in all of the interviewees' cases likely apply on a larger scale as well, even though their specific extent and form may vary.

4.1 Experimentation and exploration as an essential attitude in developing a company

On of the three central themes that were discovered was the pervasiveness of experimentation. The results illustrate that the entrepreneurs interviewed have embraced exploration as a part of their organizational processes, in this case the development process of the business concept and strategy. As previously suggested [15], it is the explorative nature of design thinking which helps companies to

discover options for a solution, that best delivers a competitive advantage. The importance of experimentation, testing, and trying out different approaches in the process of developing a company is highlighted throughout the results. As such, the results are in line with the design thinking suggestion that the best ideas emerge when the whole organization, not just parts of it, have room to experiment and explore [8].

The companies were to a large extent shaped by experimentations, that were done e.g. with strategies, products and the focus of the business concept. The ideas were pitched to potential customers, partners in cooperation, and investors, as well as explained for friends and family, in order to gain feedback, and questionnaires and test marketing were utilized as well. Through these experiments and feedback mechanisms both the organization and the individuals in it learned. It seemed that the cognitive process was much in line with design thinking [e.g. 11, 12, 20], as the results illustrated the entrepreneurs' need, among other things, to experiment with the different possible solutions they had created for the business concept as well as different approaches to strategy. The leaning towards experimentalism emerged already in the very start of the company's development, where the entrepreneurs had felt a need to move to a concrete level early on – in line both with what design thinking theories suggest about experimentation [8], as well as the entrepreneurship literature's suggestions that entrepreneurs should give up too careful planning and act upon their business intentions, letting the plan emerge [21, 22]. The significant role of exploration remained when the operations of the company started. The ways of experimenting included testing early ideas, prototyping, or trying out possible solutions and thus learning by trial and error.

By experimenting, the entrepreneurs searched for the right problem set, the company's niche, and possible solutions and directions the company should take. Thus the results were in line with design thinking literature arguments that design is rarely a task of optimization [4], but rather a task of creating and eliminating possibilities [8], as there can never be an exhaustive list of possible solutions to a design problem [4]. This was also reflected in the fluid character of the organizational processes in hand. Experimentation occurred hand-in-hand with prototyping and testing the ideas, utilized to get feedback and to further narrow down the possible solutions [6]. According to Brown [8] this kind of methodical experimentation is one of the basic attitudes of design thinking, as well as the key to new possibilities and thus innovation.

In addition to being present throughout the different development phases, experimentation appeared to occur as a cyclic activity alongside systematic designing. Thus, combined with the approach of first creating possibilities and then narrowing them down, the development followed the process of divergent and convergent thinking, and phases of analysis and synthesis [4, 8, 10]. Design thinking theories suggest that there is no absolute end to a design process [4], instead design is perceived as a reflective process including multiple variables. The results of this study, revealing the explorative and continual nature of the process, suggest that this is valid also in the design of organizational processes, thus supporting the initial hypothesis. Similar conclusions have been drawn by Sarasvathy [23], suggesting that entrepreneurial firms face problems as design problems. All in all, experimentation seems to play a critical role in developing a company, underlining existing literature [6, 7], and suggesting that ways to support this kind of experimental approach should be systematically fostered in companies.

4.2 Emergent elements of business concepts and strategy

Emergence was also described as having a significant role in the process, especially in creating strategies, thus linking the thought processes of design thinking [4, 5, 8] with emergent strategies [24]. Part of the development of the company happened in an emergent, evolutionary manner in addition to all of the active efforts of the entrepreneurs. The strategy was to a large extent emergent, and the interviewees often even described having no strategy at all – although they had made strategic decisions and planning as well as visioning, they admitted that those decisions were not set in stone. The strategies were not perfectly emergent, but what Mintzberg and Waters [24] call "patterns in streams of actions"(p.257). The results suggest that during the development and start-up phase of a company, the strategy is actually the outcome of a combination of the vision and the actions and

experiments, and that the actions are often dictated or initiated by changes in the environment or by discovered opportunities, underlining the suggestion by Mintzberg and Waters [24]. The study illustrates that entrepreneurs are willing to experiment with different strategies, as Sarasvathy [23] suggests they should, and that they do not make a clear separation between business concept and strategy in the start-up phase of their company, but rather approach the company as a holistic system.

Because of the complexity of the process, designers' moves produce consequences that are not necessarily intended [7], therefore often taking the design process of the company to unplanned directions. The companies were gradually formed with time in an organic manner, and the entrepreneurs refined and refocused their concept and strategy continuously. Experimenting, ideating, trying out the newly found and formulated solutions and then shaping the business concept and strategy accordingly are repeated [see 11] over time. The above mentioned approach to business development highlights the need to remain agile [see 25], which was essential in order to maintain the explorative approach to the development, since rapid changes were unavoidable when experimenting and taking advantage of emergent opportunities. In addition, being comfortable with ambiguity [9, 14] is required when operating in such a manner. In the light of this study, as it seems that emergence is an unavoidable attribute in designing business development, it should be prepared for and leveraged.

4.3 The influence of the product and team on the development direction

This paper suggests that the largest influences shaping the emergent development of a company, in addition to the outside environment changes [25], are the product offering and the team behind the company. In the interviews, the initial idea for a company was something that in many cases sprouted from an idea for a product, which then initiated the founding of a company. In cases like this, the strategy was something that emerged in relation to the product, which again was strongly influenced by the environment, its restrictions and its opportunities [see e.g. 24]. The founding team also had a large influence, since it was the threshold criteria for company formation – company ideas were not pursued far without the existence of a team. The team formation in turn was to a large extent coincidental. The results illustrate how important a certain kind of team, e.g. having enough variety in the people's backgrounds, was for the company in order to be able to form. Changes in the team could sometimes lead to changes in the direction of the company or its ability to operate in certain areas that required specific skills or knowledge.

The results also show that companies can be very product-lead in the development phase, and that the business concept and strategy are under a constant change depending on the product and decisions made regarding it. The concept and strategy, from this point of view, often seemed to be an extension to the product offering of the company. This connection or dependence between the company strategy and concept and the products seemed to be the stronger the earlier phase the development process was in. Users, potential customers, and other stakeholders affect the business concept and strategy indirectly through products, as they often have a strong effect on the product. Also some existing design thinking literature emphasizes the meaning of empathy towards users or people in general [e.g. 8] as well as "commercial empathy" [14] as a part of a design process. It is suggested this empathy enables finding business opportunities [6, 10]. As the product in turn shapes the whole start-up company, the users and other stakeholders end up indirectly influencing the entire company, which should be kept in mind especially when creating a company that is strongly product oriented. However, the results suggest that it might be useful to have a clear separation, at least inside the company, between the company and its offerings in order to be able to create more consistent operations models and strategies. Despite the general tendency towards experimentation, agility and emergence in the development process, the results suggest that this needs to be balanced with a certain degree of structure.

5. CONCLUSIONS

The aim of the present study was to examine the link between design thinking and the process of developing company concepts and strategies, and to find out which elements of design thinking were present in these organizational processes. The results suggest that certain elements of design thinking can indeed be seen in the process of designing a business concept and strategy, some stronger than

others. Experimentation and emergence were characteristic to the development process of a new company, and seemed beneficial for companies aiming to thrive in a rapidly changing environment. The importance of exploration and experimentation was emphasized both in creating the company concept and in the strategy formation. The studied organizational processes were described as continuously refining and defining both the goals and the means of attaining those goals, thus fulfilling one of the cornerstones of design thinking processes [4]. In addition to active experimentation, the company concept and strategy was influenced by the changing environment, users and stakeholders, and was emergent in part.

However, in addition to the combination of continuous active experimentation and emergent exploration, the results also remind of the need for structure and planning. This does not contradict design thinking theories, as the previous literature on design thinking emphasizes the importance of combining different styles and modes of thinking [4, 8, 12]. The nature of the problems that the interviewed entrepreneurs described solving, indicate that entrepreneurs face wicked problems [20] when developing their companies, and solve them in a holistic manner. Thus applying design thinking to the development and execution of organizational processes receives empirical support in this study. Further research, nevertheless, is yet needed to expand the results to a wider population of organizational processes and different types of organizations.

As many of the fundamental attitudes and cognitive processes of design thinking were found in the development process of a company, the connections between design thinking, emergent strategies, and new ventures development would be an interesting topic to study more profoundly. The link between design thinking and entrepreneurial orientation, which was only touched in this paper, also provides an interesting direction for future research, as experimentation and doing are central themes in entrepreneurship literature [26, 27] as well.

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